What Is Claimed Is:

1. A recording medium for storing a program executable by an information apparatus for implementing a parallel matrix processing method in

5 matrix processing carried out by a shared-memory scalar parallel-processing computer having a plurality of processor modules, said method comprising:

dividing a matrix into small matrix blocks;

10 storing diagonal blocks and small matrix sub-blocks of said small matrix blocks other than said diagonal blocks in local memories of said processor modules;

redundantly processing said diagonal blocks in

15 said processor modules by driving said processing modules to process their own small matrix blocks in parallel; and

updating said matrix with results of processing of said small matrix blocks obtained at

20 said processing step.

2. A recording medium according to Claim 1 wherein said matrix processing is LU factorization applied to said matrix.

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3. A recording medium according to Claim 2, said method further comprising:

extracting candidates for pivots from data of said small matrix blocks processed by said processor modules; and

determining a final one of said pivots with a maximum data value among said candidates in a memory area common to said processor modules, and

wherein said LU factorization is carried out by using said determined pivot.

4. A recording medium according to Claim 2 wherein said LU factorization of said entire matrix is completed by execution of the method comprising:

sequentially updating portions of said matrix starting with one on the outer side of said matrix in accordance with a recursive algorithm; and

eventually applying said LU factorization by using one processor module to a portion that remains to be updated inside said matrix.

5. A recording medium according to Claim 1 wherein said matrix processing is Cholesky factorization or a modified version of said Cholesky factorization applied to said matrix.

6. A recording medium according to Claim 5 wherein said Cholesky factorization or said modified version of said Cholesky factorization is

5   carried out to complete said LU factorization of said entire matrix by execution of the method comprising:

sequentially updating portions of said matrix starting with one on the outer side of said matrix

10   in accordance with a recursive algorithm; and

eventually applying said LU factorization by using one processor module to a portion that remains to be updated inside said matrix.

15   7. A recording medium according to Claim 5 wherein, at said updating step,

a triangular matrix portion of each of said small matrix block to be updated is divided into 2 × N fine blocks wherein the symbol N denotes the

20   number of processor modules; and

said fine blocks are assembled to form N pairs each stored in a local memory area of one of said processor modules to be processed by said processor module.

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8.   A parallel matrix processing method
applied to matrix processing carried out by a
shared-memory scalar parallel-processing computer
having a plurality of processor modules, said

5   parallel matrix processing method comprising:

dividing a matrix into small matrix blocks;

storing diagonal blocks and small matrix sub-
blocks of said small matrix blocks other than said
diagonal blocks in local memories of said processor

10   modules;

redundantly processing said diagonal blocks in
said processor modules by driving said processing
modules to process their own small matrix blocks in
parallel; and

15   updating said matrix with results of
processing of said small matrix blocks obtained at
said processing step.

9. A shared-memory scalar parallel-processing

20   computer having a plurality of processor modules,
said shared-memory scalar parallel-processing
computer comprising:

a blocking unit dividing a matrix into small
matrix blocks;

25   a storage unit storing diagonal blocks and

small matrix sub-blocks of said small matrix blocks other than said diagonal blocks in local memories of said processor modules;

5   a processing unit redundantly processing said diagonal blocks in said processor modules by driving said processing modules to process their own small matrix blocks in parallel; and

10   an updating unit updating said matrix with results of processing of said small matrix blocks produced by said processing means.